R E M A R K S

Claims 1, 2, 4, 6-11, 13-23, 25, 32, 33 and 35-38 were considered in the Office Action and stand as previously presented.

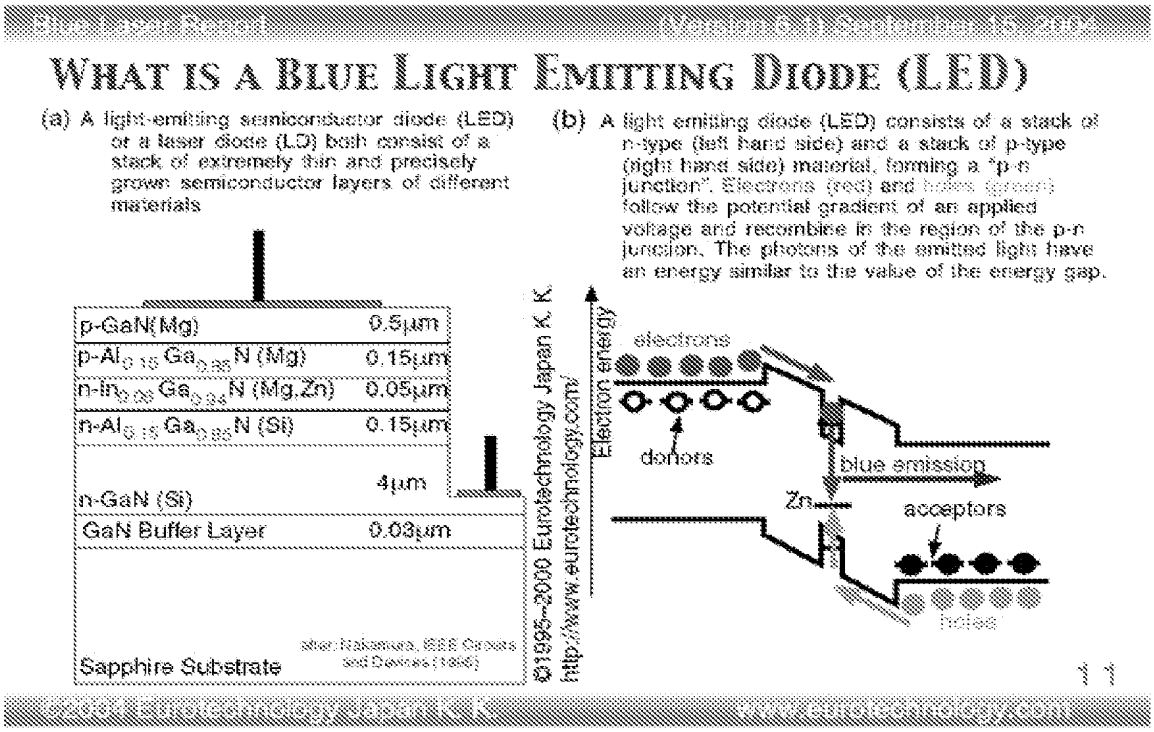
Claims 1, 2, 4, 6-11, 13-23, 25 and 32 are allowed.

Claims 33 and 35-38 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Lowery, U.S. Patent 6,504,301 and further in view of Takagi, U.S. Patent 6,791,150.

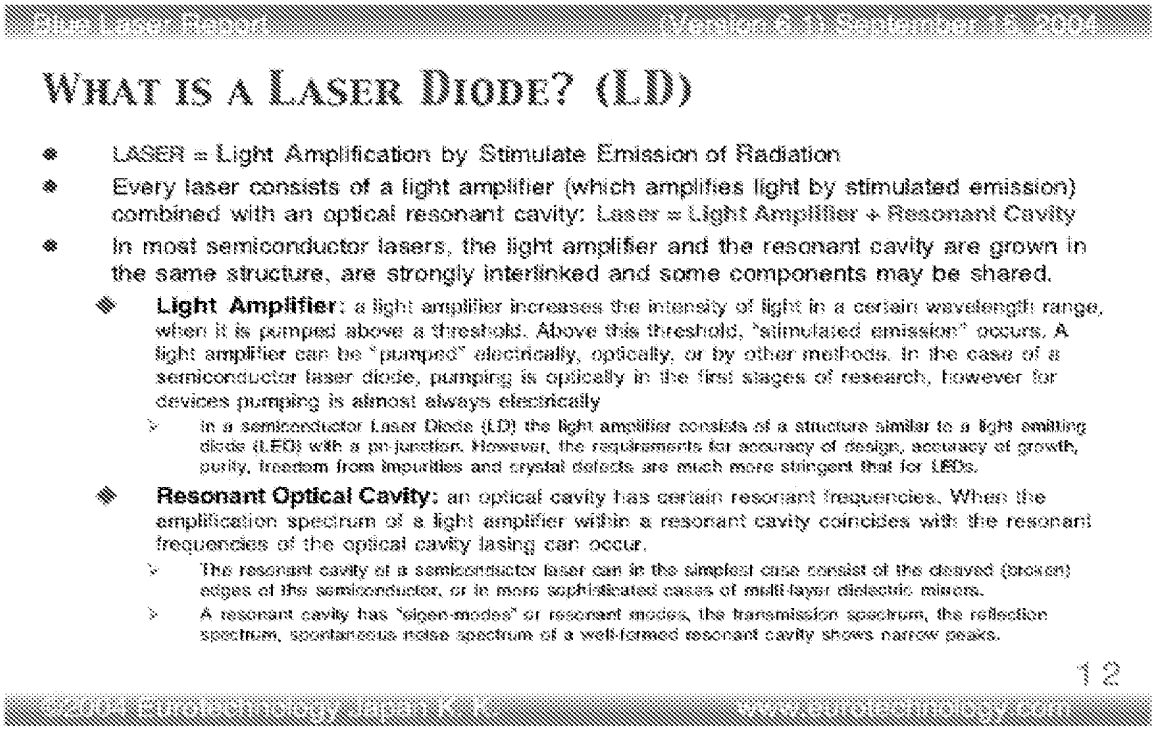
Regarding the rejection of claims 33 and 35-38, Applicants' representative respectfully disagrees with the Examiner's statement that "GaN based diodes are known in the art as laser diodes" and therefore submits that Lowery does not disclose a laser diode. GaN-based diodes include traditional light emitting diodes that produce incoherent light by spontaneous emission, as well as laser diodes that produce coherent light by stimulated emission.

Evidence of the existence of both GaN LEDs and GaN laser diodes may be found in the "Blue Laser Report", Gerhard Fasol PhD, 9/15/2004, version 6.1, at http://eurotechnology.com/bluelaser/blueslide1.html.

See, for example, slide 11 that describes a GaN LED having multiple layers, including an indium doped layer, on a sapphire substrate (http://eurotechnology.com/bluelaser/blueslide11.html):



In contrast, see slide 12 that describes a GaN laser diode as a device having a resonant optical cavity (http://eurotechnology.com/bluelaser/blueslide12.html):



(Note that the sapphire substrate is not used for its optical properties as a resonant optical cavity, but merely as a substrate because of the lack of GaN substrate wafers. See http://eurotechnology.com/bluelaser/blueslide19.html.)

Applicants' representative notes the explicit definitions of a laser diode and an LED given in Applicants' specification at page 5, lines 3-10:

"As used herein, "laser diode" refers to a device having a stack of semiconductor layers, including a double heterostructure and an active region which emits light when biased to produce an electrical current flow through the device, a optical resonator, and contacts attached to the stack. "LED" or "light emitting diode" refers to a device having stack of semiconductor layers (a "chip"), including an active region which emits light when biased

to produce an electrical current flow through the device, and contacts attached to the stack, provided the LED has no double heterostructure and no optical resonator."

In light of the fact that both GaN LEDs and GaN laser diodes are known, it appears to Applicants' representative that Lowery refers to a traditional LED, not a laser diode. See, for example, the explicit use of the term LED rather than laser diode in Lowery, col. 1, lines 45-50:

"However, a type of LED based on Gallium Nitride (GaN) has recently been developed that can efficiently emit light having a peak wavelength in the blue region of the spectrum, i.e., blue light. This new type of LED can provide significantly brighter output light than traditional LEDs."

Lowery further describes the GaN LED at col. 4, lines 38-41:

"Preferably, the LED dies are gallium nitride-based LEDs (indium doped, gallium nitride on sapphire) that emit blue light when activated by an applied electrical signal."

Lowery gives relatively detailed descriptions of a GaN LED, including the indium doped gallium nitride and the sapphire substrate, which are described in the "Blue Laser Report" cited above and distinguished from GaN laser diodes. Given Lowery's detailed description of the GaN LED and the explicit use of the term "LED" rather than laser diode, Applicants' representative believes that Lowery does not disclose or suggest a GaN laser diode.

In view of the above, all of the claims are believed to be in condition for allowance, and the Applicants respectfully request that a timely Notice of Allowance be issued.

Respectfully submitted,
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